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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,047

06/29/2006

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01/23/2008

EXAMINER

KIM, JOHN K

ART UNIT

PAPER NUMBER

4125

MAIL DATE

DELIVERY MODE

01/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,047	Applicant(s) LUTZ ET AL.	
	Examiner JOHN K. KIM	Art Unit 4125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/29/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/29/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

In claim 1, part number 90 is used for interstices (90) but is not shown in drawings. The drawing (Fig. 2a) denotes the interstices with part number (56).

In claim 1, the claim recites “ defines a point (P), and a tangent (T) can be inscribed into this point (P)”. However, no drawing shows point P and tangent T. The examiner understands P is the point intersecting tangential axis (T) and perpendicular axis in Fig. 5. Appropriate correction is required.

2. Claims 1 and 2 are objected to because of the following informalities:

The specification (page 9, line 1-12) defines the center portion m where the transition plane 59 intersects, but it is no clear definition where m is starting. Furthermore, Fig. 4 shows the m starts inside the intersection point of transition plane 59. Thus, the examiner understands the center portion m is any portion that includes the intersection of transition plane. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

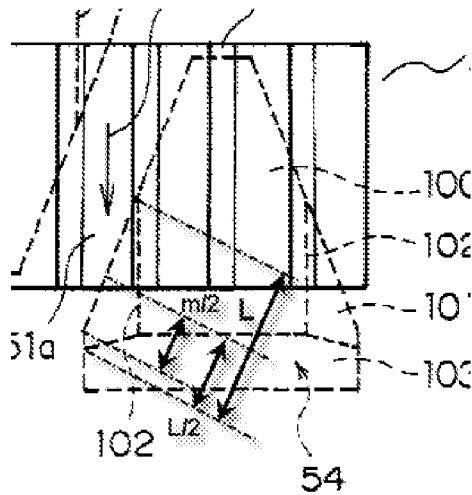
4. Claims 1, 3, 8, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Asao (US 2002/0021052).

As for claim 1, Asao teaches (in Figs. 1, 5-7, 9 and 13) a claw-pole rotor for an electrical machine, in particular a rotary current generator, [0003] having two pole wheels (51, 52), which each carry claw poles (53 and 54, respectively), which each originate in a plate region (left front plate in Figs. 6 and 7) and have a pole root (103), and on a circumference of the claw-pole rotor (circumference along 103 and 100 boundary), claw poles (53, 54) of the pole wheels (51, 52) are located in alternation, and located between the claw poles or interstices (between numeric 53B and 100 in Fig. 6), and a claw pole (53, 54) has a radially outward- oriented cylindrical-jacketlike surface (100), by which a pivot axis (axis of 6) is defined, and a chamfer (101 or 105) extends on the one hand in a circumferential direction and on the other in an edge direction of a claw pole (53 and 54, respectively), characterized in that the chamfer (101 or 105) has a center portion m in the edge direction that intersects a transition plane (103 and 100 border plane) which demarcates the pole root (103) and the freely projecting part of the claw pole (100), and the center portion m amounts to 8/10 of the length, oriented in the edge direction, of the chamfer (101); (see sketch below) and that the claw pole (53, 54) has a width Bk oriented in the circumferential direction, and a half width Bk on the cylindrical surface (100), in a plane of the claw pole (53, 54)

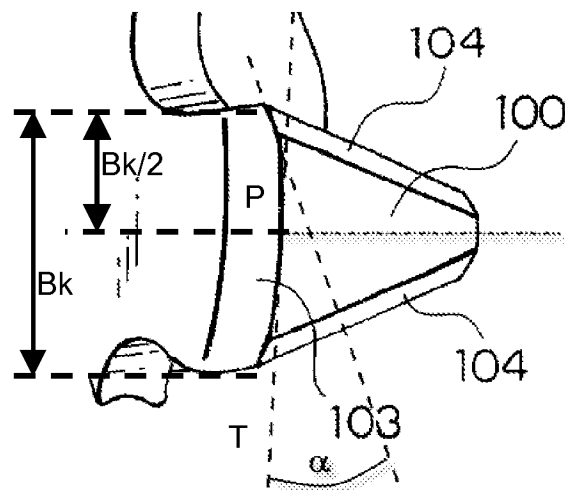
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that is vertical to the pivot axis (axis of 6), defines a point (P), and a tangent (T) can be inscribed into this point (P), (see sketch below)

and an angle of inclination α which has a magnitude of between 15° and 25° is enclosed between the tangent (T) and the chamfer (101) in the plane that is vertical to the said pivot axis. (see sketch below)



sketch from Fig. 2

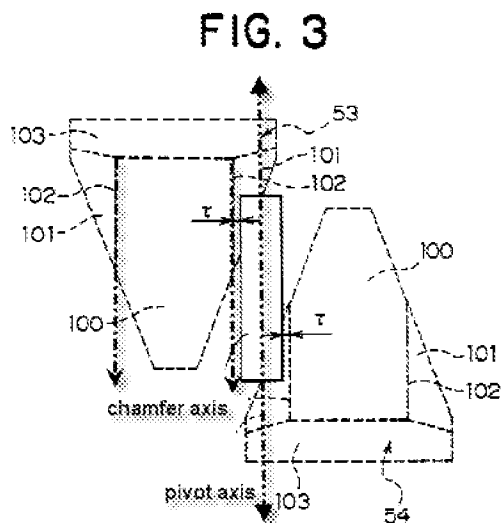


sketch from Fig. 7 (alpha is 22 degrees)

As for claim 3, Asao teaches the claimed invention as applied to claim 1 above. Asao further teaches (in Fig. 2) the chamfer (101) has a center (m) in the edge direction (see sketch above) that is located close to the transition plane (103 and 100 border plane) from the pole root (103) to the freely projecting part of the claw pole (100).

As for claim 8, Asao teaches the claimed invention as applied to claim 1 above.

Asao further teaches (in Figs. 1-3) the chamfer (101) is a plane which is oriented parallel to the pivot axis direction (axis of 6). (see sketch below)



As for claim 9, Asao teaches the claimed invention as applied to claim 1 above.

Asao further teaches (in Fig. 5) between the chamfer (110) and the cylindrical-jacketlike surface (100) is a stepped transition.

As for claim 11, Asao teaches (in Fig. 13) a rotary current generator, in particular for motor vehicles [0003], having an annular-cylindrical stator iron (15) and having a claw-pole rotor (7) as applied to claim 1 above. Asao further teaches (in Figs. 7 and 13) the chamfers (103) project beneath the stator iron (15) in such a way that a portion of the chamfers (103) remains outside the stator iron (15).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

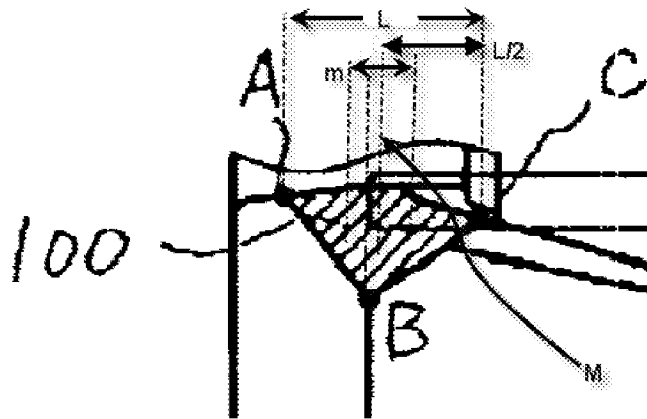
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Oohashi et al (US 6476535).

As for claim 2, Asao teaches the claimed invention as applied to claim 1 above. Asao, however, failed to teach the center portion m amounts to 1/3 of the length (l) of the chamfer (68). In the same field of endeavor, Oohashi teaches (in Figs. 3, 7, 9 and sketch below) the center portion m amounts to 1/3 of the length of the chamfer (100). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the center portion m amounts to 1/3 of the length of the chamfer by combining the teaching of Oohashi with that of Asao for reduction of high band noise.



7. Claims 4-5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Armiroli et al (US 6424072).

As for claims 4 and 5, Asao teaches the claimed invention as applied to claim 1 above. Asao, however, failed to teach the chamfer is extends up to 5 mm in the pivot axis direction on the freely projecting part of the claw pole. In the same field of endeavor, Armiroli teaches (in Figs. 1 and 6) the chamfer (20) is extends up to (L) 2~5 mm in the pivot axis direction on the freely projecting part of the claw pole (18). (col. 4, line 18-20) Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the chamfer is extends up to (L) 2~5 mm in the pivot axis direction by combining the teaching of Armiroli with that of Asao for noise reduction.

As for claim 12, Asao teaches the claimed invention as applied to claim 11 above. Asao teaches (in Fig. 13) the chamfer is beneath the stator iron but fails to

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teach the chamfers project at least 1 mm beneath the stator iron. In the same field of endeavor, Armiroli teaches (in Figs. 1 and 6) the depth of chamfers being 0.3~2 mm and airgap between stator and rotor. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the chamfers project at least 1 mm beneath the stator iron by combining the teaching of Armiroli with that of Asao for noise reduction.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Fudono et al (US 6424072).

Asao teaches the claimed invention as applied to claim 1 above. Asao, however, fails to teach the chamfer (68) has a width (bf) of between 4 mm and 6 mm. In the same field of endeavor, Fudono teaches (in Figs. 1b and 7) a width of between 4 mm and 4.5 mm. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the width of chamfers between 4 mm and 6 mm by combining the teaching of Fudono with that of Asao for noise reduction.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Amlee et al (US 5747913).

Asao teaches the claimed invention as applied to claim 1 above. Asao, however, fails to teach the chamfer (68) has a length (l) of between 4 mm and 6 mm. In the same field of endeavor, Amlee teaches (in Figs. 13-14) a length of 4.6 mm in the hybrid pole magnet. (col. 8, line 62-63) Therefore, it would have been obvious to a person of

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ordinary skill in the art at the time the invention was made to make the chamfer with a length of between 4 mm and 6 mm by combining the teaching of Amlee with that of Asao for noise reduction.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Ishizuka et al (US 2003/0137214).

As for claim 10, Asao teaches the claimed invention as applied to claim 1 above. Asao, however, failed to teach the chamfer is formed integrally in non-metal-cutting fashion, in particular being forged on. In the same field of endeavor, Ishizuka teaches [0010] the chamfer is formed integrally in non-metal-cutting fashion, in particular being forged on. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the chamfer being forged on by combining the teaching of Ishizuka with that of Asao for reduction of manufacturing cost.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asao (US 2002/0021052) in view of Ikeda et al (US 2002/0096965).

Asao teaches the claimed invention as applied to claim 1 above. Asao further teaches (in Fig. 1) the claw-pole rotor (50) is rotated to generate current [0003], and each claw pole (53, 54) has one edge that is oriented in the direction of rotation and one edge that is oriented counter to the direction of rotation.

Asao, however, failed to teach the chamfer is formed on the edge that is oriented in the direction of rotation. In the same field of endeavor, Ikeda teaches (in Fig. 19) the chamfer (14c) is formed on the edge that is oriented in the direction of rotation.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the chamfer on a edge in the direction of rotation by combining the teaching of Ikeda with that of Asao to optimize the noise reduction particularly for the designated direction of rotation.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Frister (US 4972114) also teaches the chamfer angle being 15-25 degrees. (col. 6, line 16-17) Fudono (US 5708318) also teaches optimal range of the chamfer angle. (col. 4, line 3-18)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Kim whose telephone number is (571) 270-5072. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on 703-585-9637. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JK

/Charles D. Garber/
Supervisory Patent Examiner, Art Unit 4125